

TER-MKRTICH'YAN, L.N.

Tensions and deformations in a quasi-isotropic elastic body.
Nauch.trudy LTA no.94:23-40 '62. (MIRA 16:1)
(Deformations (Mechanics)) (Strains and stresses)

TER. MKRTCHYAN, A.

Power plant with a generator of alternating action. Prm.
Arm. 4 no.7:29-31 J1 '61. (MIRA 14-7)
(Electric generators)

85477 S/173/60/013/001/005/005
A104, A029

26.1100

AUTHORS:

Ter-Ovsepyan, Sh.M., Ter-Mkrtychyan, A.A.

TITLE:

Calculation of the Economy of a Gas Turbine Combined With a Free-Piston Engine

PERIODICAL:

Izvestiya Akademii nauk Armyanskoy SSR. Seriya tekhnicheskikh nauk, 1960, Vol. 13, No. 1, pp. 71-80

TEXT:

The authors describe the advantages and high economy achieved by use of combined gas turbines consisting of a gas turbine and a free-piston engine. A symmetrical free-piston engine compressor equipped with an air buffer is shown. A detailed description on its operation is given. The purpose of this paper was to establish analytical dependences connecting the given initial and operational parameters. The established dependences should be suitable for engineering calculations of combined gas turbines equipped with free-piston engines and gas turbines. The work was performed according to a modification of the method developed by Professor V.K. Koshkin and mathematical data are expressed in 16 equations determining the efficiency of the combined gas turbines, free-piston engines and gas turbines and the degree of pre-heating. Equations for

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S/173/60/013/001/005/005
A104/A029

Calculation of the Economy of a Gas Turbine Combined With a Free-Piston Engine

combined gas turbine consisting of a free-piston engine and a gas turbine, and temperature relations facilitated the development of an economy scheme which connects pre-calculated initial parameters with parameters influencing the performance. Relative curves (π_k) indicate the increase in pressure corresponding to the chosen efficiency value, whereas other curves indicate the coefficient which should be selected for a planned free-piston engine in order to ensure this efficiency for the entire installation at given initial and operating parameters. The described calculation method and technical-economical analysis are sufficiently accurate and simple. The derivation of the economy scheme is primarily based on joint solution of equations determining the functional dependency of the turbine efficiency and operating gas temperatures on initial parameters. The method described can be used with equal success for calculations for combined gas turbines with free-piston engine compressor and with free-piston engine generator. The proposed method is applied in the work of the Otdel gazoturbinnykh ustanovok filiala Nauchno-issledovatel'skogo instituta elektrotekhnicheskoy promyshlennosti pri Armelektrozavode (Branch of the Scientific Research Institute

Card 2/3

X

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S/173/60/013/001/005/005
A104, A029

Calculation of The Economy of a Combined Gas Turbine With a Free-Piston Engine
of Electrotechnical Industry of the Armelektrozavod, Department of Gas Turbines).
There are 2 figures, 1 table and 1 Soviet reference.

ASSOCIATION: FNIIA

SUBMITTED: February 15, 1959

Card 3/3

X

SOV/124-58-1-773

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 99 (USSR)

AUTHOR: Ter-Mkrtchyan, K. A.

TITLE: Investigation of the Heat-exchange Processes Occurring During the Laminar Flow Regime of a Heat Carrier Relative to the Heating Elements of a Water-cooling System (Issledovaniye protsessov teploobmena pri laminarnom rezhime dvizheniya teplonositelya primenitel'no k nagrevatel'nyim priboram sistem vodyanogo okhlazhdeniya)

PERIODICAL: Sb. nauch. tr. Yerevansk. politekhn. in-ta, 1955, Nr 6, pp 141-149

ABSTRACT: An investigation of the influence of free and forced convection on the heat-transfer process in heating elements. An empirical formula of the form $N = 1.275 (GP)^{0.15}$ is adduced, which was obtained by the author for the heat transfer in the laminar flow regime in warm-water heating systems (wherein N is the Nusselt number, G the Grashof number, and P the Prandtl number). The Reynolds number during the tests varied between 40 and 100. The author proposes to intensify the operating regime of a water-heating system by delivering the water at a temperature of 100 to 103°C. An appended table shows results

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Investigation of the Heat-exchange Processes Occurring During the (cont.) SOV/124-58-1-773

which denote that the application of such a regime would afford a reduction of the total amount of metal required for a system (owing to the reduction in heating-surface area).

V. N. Bogin

Card 2/2

MELIKYAN, G.O.; ~~TER-MEETCHYAN, K.A.~~

Central heating systems based on "overheated water". Izv. AN Arm.
SSR, Ser. FOMT nauk 9 no.10:87-101 '56. (MLRA 10:4)

1. Yerevanskiy politekhnicheskiy institut imeni K. Marksa.
(Hot-water heating)

TER-MKRTCHYAN, K.; MELIKYAN, G.

Selecting rated outside temperature of air for heating systems
in Armenia. Prom.Arm. 4 no.5:58-61 My '61. (MIRA 14:8)

1. Nauchno-issledovatel'skiy sektor Yerevanskogo politekhnicheskogo
instituta.

(Hot-air heating) (Armenia--Atmospheric temperature)

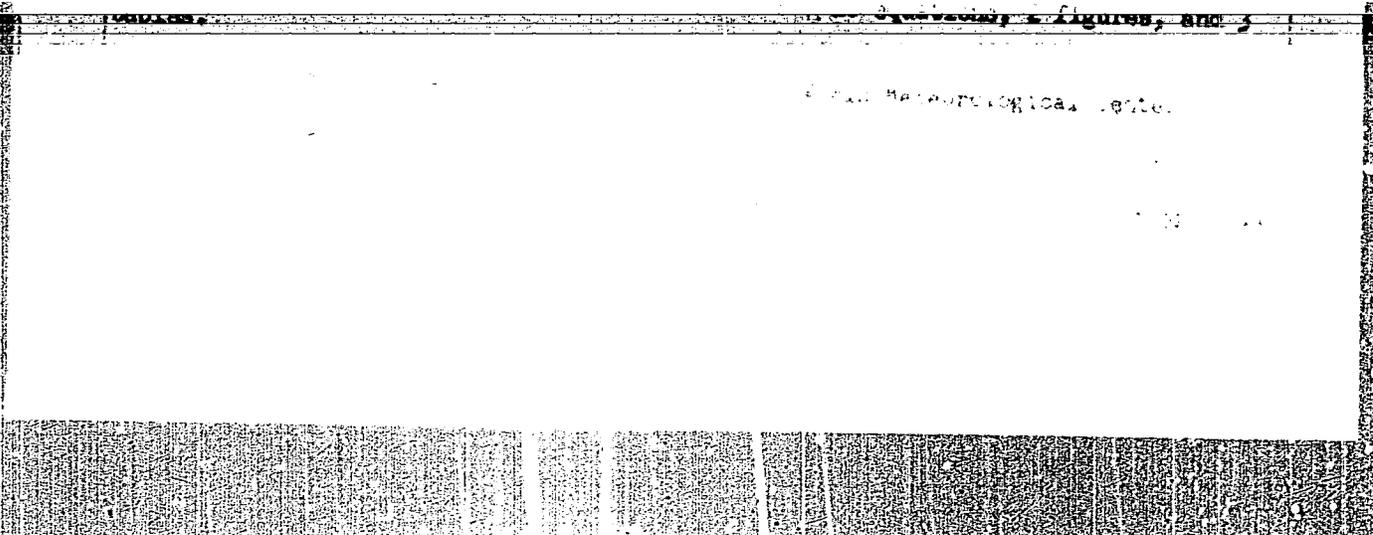
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TER-MKRTYCHEVA, O.Kh.

USSR/General Problems of Pathology - Tumors.

T-5

Abs Jour : Ref Zhur - Biol., No 4, 1958, 17469

Author : Abdulayev, D.M., Akhundova, A.M., Ter-Mkrtycheva, O.Kh.,
Shcherbits-kaya, L.A.

Inst : -

Title : The Treatment of Leukemias According to the Data of the
Clinico-Hematologic Department of AZIFK.

Orig Pub : So. nauchn. tr. Azerb. n.-i. in-ta pereivaniya krovi,
1957, vyp. 3, 18-37.

Abstract : No abstract.

Card 1/1

USSR / General Problems of Pathology. Tumors. Human Neoplasms. U

Abs Jour: Ref Zhur-Biol., No 11, 1958, 51722.

Abstract: cessation of the malarial attacks, under the effect of antimalarial therapy, the leucocyte count increased again and the patients' condition worsened. Suppurative processes, occurring during lymphadenosis, caused, in one patient, a 3 week long remission, in another- the general condition deteriorated and the patient died with manifestations of progressive anemia and leucopenia. It is the opinion of the authors that suppurative and inflammatory processes occurring in the course of leukemias may produce temporary remissions in patients in whom the hemopoietic function is preserved; in other cases, associated suppurative processes lead to total destruction of hemopoiesis. -- R. P. Zolotnitskaya.

Card 2/2

AKHUNDOVA, A.M.; TER-MKRTYCHEVA, O.Kh.

Use of the preparation mucovite for the treatment of Addison-Biermer's disease. Probl. gemat. i perel. krovi 5 no.2:55-56
F '60. (MIRA 14:5)

1. Iz Azerbaydzhanskogo nauchno-issledovatel'skogo instituta gematologii i perelivaniya krovi (dir. - dotsent G.A.Guseynov).
(STOMACH—SECRETIONS) (ANEMIA)
(CYANOCOBALAMINE)

AKHUNDOVA, A. M.; TER-MKRTYCHEVA, O. Kh.

Interrelationship between aplastic conditions in hematopoiesis and acute leucosis. Probl. gemat. i perel. krovi no.10:31-33 '61.
(MIRA 14:12)

1. Iz kliniko-gematologicheskogo otdeleniya i Azerbaydzhanskogo nauchno-issledovatel'skogo instituta gematologii i perelivaniya krovi (dir. - dotsent G. A. Guseynov).

(LEUKEMIA) (HEMATOPOIETIC SYSTEM—DISEASES)

YEFENDIYEV, F.A.; AKHUNDOVA, A.M.; TER-MKRTYCHEVA, O.Kh.; RAGIMOV, Sh.R.

Clinical observations on the use of bone marrow transplantation in
the treatment of various diseases of the blood system. Probl. gemat
i perel. krovi 6 no.2:30-33 '61. (MIRA 14:2)
(MARROW—TRANSPLANTATION) (LEUKEMIA)
(ANEMIA)

GUSEYNOV, G.A.; KASIMOV, G.I.; RZAYEV, N.A.; AKHUNDOVA, A.M.; TERMKHETTCHEVA,
O.Kh.; PROLOVA, K.G.

Use of plastic bags for the storage and transfusion of preserved
blood. Probl. gemat. i perel. Krovi 8 no.9:18-19 S '63.
(HIRA 17:9)

1. Iz Azerbaydzhanskogo nauchno-issledovatel'skogo instituta
gematologii i perelivaniya krovi (dir. - dotsent G.A.Guseynov).

TERMOREZOVA, N.A.

Treatment of limonite variety iron ores from the Kerch deposits.
Gor. zhur. no.8:17-20 Ag '57. (MLRA 10:9)

1. Glavnyy obogatitel' Kmyshburnskogo kombinata.
(Kerch Peninsula--Iron ores) (Ore dressing)

TERNAVSKIY, A.V.; KRINITSKIY, A.F.; LAPINA, G.G. (Kiyev)

Clinical evaluation of probeless determination of gastric secretion.
Vrach. delo no.6:42-45 Je '61. (MIRA 15:1)
(STOMACH SECRETIONS)

DRATOVSKY, Milan, RNDr. CSc.; TERNBACH, Zdenko, promovany chemik

Salts of periodic acid. Pt.8 Chem Vestn 18 no.4:241-249 '64

Representation of concentration in isothermal ternary diagrams
in root-mean-square measurement. Ibid. 289-293

1. [#] Department of Inorganic Chemistry of the Faculty of Natural
Sciences, Charles University, Prague, Albertov 2030 (for
Dratovsky). 2. Research Institute of Inorganic Chemistry, Usti
nad Labem (for Ternbach).

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755420004-3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755420004-3"

TERNBAH, Mirko, Dr.

Chemical structure and effect of curare. Voj. san. pregl.,
Beogr. 14 no.3:147-152 Mar 57.

1. Zavod za organsku kemiju Farmaceutskog fakulteta
Sveucilista u Zagrebu.
(CURARE,
chem. structure (Ser))

TERNBAH, M.

Synthetic tests with 1,3-dichlorobutane-(2); preparation of iso-quinoline and quinolizidine. Great.chem.acta 31 no.3:115-119 '59.
(KRAI 9:4)

1. Zavod za organsku kemiju Farmaceutskoy fakulteta Svencilista u Zagreba.

(Dichlorobutane) (Isoquinoline) (Norlupinane)

TERNER, Kornelia, dr.

The gingiva as an entrance to allergens-- based on animal experiments. Fogorv. szemle 58 no.11:327-332 N '65.

1. Közlemény a Debreceni Orvostudományi Egyetem Stomatológiai Klinikájáról (igazgató: Adler, Peter, dr. egyetemi tanár).

ROYZMAN, B.; TERNER, T.B.; Prinimali uchastiyo: KHOGGEN, M.D.; SHLYUDERBERG,
A.S.; FORSIT, P.I.; O'DONOVAN, P.

Effect of antibodies and temperature on the dynamics of virus infections
of cells in tissue culture. Vop.virus. 6 no.5:548-560 S-0 '60.
(MIRA 14:7)

1. Otdel mikrobiologii Universiteta Dzhona Gopkinsa, Baltimore,
Merilend, SShA.

(VIRUSES) (TEMPERATURE—PHYSIOLOGICAL EFFECT)
(ANTIGENS AND ANTIBODIES) (TISSUE CULTURE)

TERNER, Ya. M.

History of Russian neuropathology; cortical partial epilepsy.
Nevropat. psikhiat., Moskva 19 no.5:41-42 contd. Sept-Oct. 1950.
(CML 20:1)

1. Of the Clinic for Nervous Diseases (Director -- Prof. D. T.
Kuimov), Novosibirsk Medical Institute.

TERNER, Ya, M.

Visceral or diencephalic epilepsy (History of Russian neuropathology). Nevropat.pskhiat., Moskva 20 no.1:52-53 Jan-Feb 51. (GLML 20:6)

1. Assistant. 2. Of the Department of Nervous Diseases (Head--Prof. D.T.Kuimov), Novosibirsk State Medical Institute.

TURNER, Ya.M.; BAKHUR, V.T.

Letters to the editor. Zhur. nevr. i psikh. 55 no.1:77-78 Ja '55.
(EPILEPSY) (NEUROSES) (MLRA 8:2)

TERNER, Ya. M.

Organization of fangotherapy outside of health resorts on
collective farms of Novosibirsk Province. Sov. med. 20 no.4:
61-64 Ap '56. (MLRA 9:8)

1. Iz kliniki nervnykh bolezney (direktor professor D. T. Kulmov)
Novosibirskogo meditsinskogo instituta i Novosibirskogo oblastnogo
meditsinskogo uchilishcha (direktor Ye. M. Zhudro).

(MUD THERAPY,

organiz. in rural areas in Russia. (Rus))

TURNER, YA. M., CAND MED SCI, "SYNDROME OF CAUSALGIA AND ITS BALNEOLOGIC TREATMENT. (EXPERIENCE OF THE WORK OF THE NEUROLOGICAL DEPARTMENT OF THE KARACHI HEALTH-RESORT HOSPITAL IN THE YEARS OF THE GREAT PATRIOTIC WAR 1941-1945)." NOVOSIBIRSK, 1959. (NOVOSIBIRSK STATE MED INST). (KL-DV, 11-61, 230).

TURNER, Ya. M., kand. med. nauk

Neurological changes in acrichine "psychosis" in animals. Trudy
Novosib. gos. med. inst. 37:94-101 '61. (MIRA 15:6)

(QUINACRINE—TOXICOLOGY) (PSYCHOSES)
(NERVOUS SYSTEM—DISEASES)

COUNTRY : Rumania H-26
CATEGORY :
ABB. SOUR. : REKUM., No. 16 1959, No. 58990
AUTHOR : Cotigaru, S., Petrinis, L., and Pernicera, P.
INST. : Not given
TITLE : The Use of Plastics (Polyethylene and Polyvinyl Chloride) in the Packaging of Food Products
ORIG. PUB. : Rev Ind Aliment Prod Vegetale, No 7-8, 44-46 (1958)
ABSTRACT : The authors discuss the requirements which must be met by plastics intended for application as packaging materials: ease of fabrication; resistance to storage, shipment, and wear; thermal and chemical stability; proofness to moisture, gases, and UV light; hermeticity [sic]. The physicochemical properties of polyethylene and of PVC are described. Examples of applications in the packaging of milk and dairy products and of other food products are given. The Bucharest

CARD: 1/2

375

TERNICHENKO, YE. I.

Hybridization, Vegetable

New method of crossing peas. Sel.i sem. 19 No. 6, 1952.

Monthly List of Russian Acquisitions, Library of Congress, September 1952 UNCLASSIFIED

SALEYEV, D. P., ENG., PERNINOV, F. V., ENG.

Electric Cables - Testing

Testing device without a kenotron. Elek. sta. 23 no. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassif

1. MURZANEV, Ye. P., Eng.; TERNIKOV, P. V.
2. USSR (600)
4. Electric Lines - Poles
7. Mechanizing hole digging and placement of poles. Elek. sta, 23, No. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

SALZHEF, D. F. Eng., TERNIKOV, T. V. Eng.

Electric Lines - Overhead

Improved pole junction box for cable networks. Elek. sta. 23 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

TSENYLOV, F. V. Eng., MUSATOV, T. P. Eng., CHERBYNINOVICH, V. I. Eng., FED'YENKO, N. I. Eng.

Electric Relays

Disconnecting charging and load currents by means of relays. Elek. sta. 23 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

SALEYEV, D.P., inzhener; TERNIKOV, P.V., inzhener.

Destruction of porcelain ties during voltage testing. Elek.sta. 24 no.
5:60-61 My '53. (MLBA 6:7)

(Electric testing)

AID P - 2953

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 3/35

Author : Ternikov, P. V., Eng.

Title : Steel cable joints

Periodical : Energetik, 5, 7-9, My 1955

Abstract : The author describes the common type of cable joints made of lead with a steel or cast iron cover. In order to economize lead and to obtain a better dependability of operation, the town of Gor'kov introduced in 1950 steel cable joints in its electric cable network. The author describes details of this type of joint and concludes that its performance is most satisfactory. Two photographs.

Institution : None

Sumbitted : No date

AID P - 3516

Subject : USSR/Power Eng
Card 1/1 Pub. 26 - 10/30
Authors : Korinfskaya, N. N. and P. V. Ternikov, Engs.
Title : Remote control of municipal networks using automatic telephone communication
Periodical : Elek. sta., 9, 35-37, S 1955
Abstract : The article describes the use of telephone lines incorporated in the municipal electric power network for automatic reporting of power failures or shut-downs. This system is strongly recommended for wide use. One diagram, two photos.
Institution : None
Submitted : No date

TERNIKOV, P.V., inzhener.

Protection of dead-ended laterals by means of PK fuse cutouts.
Energetik 4 no.4:23-24 Ap '56. (MIRA 9:7)
(Electric cutouts) (Electric lines)

1957
Технический проект. Инженер.

Automatic reclosing device for 6 kv lines not having cutouts.
Energetik 5 no.7:6-7 J1 '57. (MIA 10:8)
(Electric lines)

TERNIKOV, P.V.
YEFREMOV, N.I., inzhener; SALEYEV, D.P., inzhener; TERNIKOV, P.V., inzhener.

Operating 6 kv cable networks. elek.sta.23 no.7:73-75 J1 '57.
(MLRA 10:4)

(Electric cables)

Teaming P.V.
KOLOBOV, M.M., inzhener; SALBYEV, D.P., inzhener; TERNIKOV, P.V., inzhener.

Locating defective insulators on 6 kv. lines with a milliammeter.
Elek.sta.28 no.8:78-80 Ag '57. (MIRA 10:10)
(Electric insulators and insulation)

TERNIKOV, P.V., inzh.

Automatic closing of reserve power (AVR) in municipal electric
networks in connection with unloading. Elek.sta. 28 no.10:73-74
'57. (MIRA 10:11)

(Electric networks)

TERNIKOV, P.V., inzh.

Use of "Belarus" trailers in servicing municipal electric
lines. Energetik 8 no.7:26 J1 '60. (MIRA 13:8)
(Tractors)

TERNIKOV, P.V., inzh.

Use of two-way radio on metropolitan electric networks. *Energetik*
8 no.11:28-29 N '60. (MIRA 13:12)
(Electric power distribution--Communication systems)

TERNIKO, P.V., inzh.

Distribution points without line disconnecting switches. Elek.
sta. 32 no.2:85-86 F '61. (MIRA 16:7)
(Electric power distribution)
(Electric switchgear)

TERNIKOV, P.V., inzh.

Distribution centers without linear disconnectors. Energetik 10
no.7:32-33 J1 '62. (MIRA 15:7)
(Electric power distribution)

TERNIKOV, P.V., inzh.

Modernization of the BKGM-AN-63 drilling and hoisting rig. Elek.
sta. 33 no.10:76 0 '62. (MIRA 16:1)
(Boring machinery) (Hoisting machinery)

TERNIKOV, F.V., inzh.

Rotatable extensible ladders on GAZ-51 trucks. Energetik 12
no. 11231 N 124 (MIRA 1882)

TATARENKO, Ye.S.; TERNIKOVA, I.P.

Development of mold fungi in distilled water. Nauxh.dokl.vys.shkoly;
biol.nauki no.2:91-95 '60. (MIRA 13:4)

1. Rekomendovana kafedroy mikologii i fitopatologii Khar'kovskogo
gosudarstvennogo universiteta im. A.M. Ger'kogo
(MOLDS (BOTANY))(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

TATARENKO, Ye.S.; GERASIMOVA, I.P.; TERNIKOVA, I.P.

Variability of experimentally produced forms of the fungus
Aspergillus oryzae. Trudy Inst. mikrobiol. no.10:112-119 '61.
(MIRA 14:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut pishchevoy
promyshlennosti.

(ASPERGILLUS ORYZAE)

(VARIATION (BIOLOGY))

TATARENKO, Ye.S.; PLOTKINA, D. Ye.; VYSOTSKAYA, M.A.; GERASIMOVA, I.P.;
TERNIKOVA, I.P.; DYSHKANT, M.G.

Production of itaconic acid by *Aspergillus terreus*. Mikrobiologia 32 no.6:1078-1086 N-D '63 (MIRA 18:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti.

TERNIKOVA, R.M., aspirant

Qualitative reactions to lydol, phenadone, and promedol. Apt.delo
6 no.2:38-43 Mr-Ap '57. (MIRA 10:6)

1. Iz kafedry sudebnoy khimii (nauchnyy rukovoditel' - prof.
M.D.Shvaykova) Moskovskogo farmatsevticheskogo instituta.
(MORPERIDINE) (METHADONE) (PIPERIDINE)

TERNIKOVA, R. M. Cand Pharm Sci -- (diss) "Forensic-chemistry characteristics of arecoline and promedole, and certain analytic peculiarities of lidol and phenadone." Mos, 1958. 20 pp (1st Mos Order of Lenin Med Inst im I. M. Sechenov), 200 copies (KL, 52-58, 109)

-142-

COUNTRY :
CATEGORY :

V

ABS. JOUR. : RZhBiol., No. 5 1959, No. 23024

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT :
cont'd : determination increases by 2 times. The above method is also applicable for the detection of P in the organs and tissues of poisoned animals. Upon introduction of 45 mg/kg of aqueous solution of P into the ear vein of rabbits, the animals die within a few minutes from paralysis of the respiration center. In lethal poisoning of rabbits, P is detectable in the lungs, kidneys and urine.

Card: 2/2

Name: TERNO, O. R.

Dissertation: Regulation of the frequency in power systems with consideration of the economic characteristics of the stations

Degree: Cand Tech Sci

Defended at
~~Institution:~~ Min Higher Education USSR, Leningrad Polytechnic Inst imeni M. I. Kalinin

Publication
Defense Date, Place: 1956, Leningrad

Source: Knizhnaya Letopis', No 45, 1956

L 15055-66 EWT(d)/EWP(v)/T/EWP(k)/ENP(h)/EWP(l) IJP(c)
ACC NR, AP6002143 SOURCE CODE: UR/0280/65/000/006/0013/0018

AUTHOR: Terno, O. R. (Tallin)

ORG: none

TITLE: Hybrid functions as a new method of description of complex systems

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 6, 1965, 13-18

TOPIC TAGS: hybrid function, complex system

ABSTRACT: Analysis of modern complex systems requires mathematical language and mechanism which would permit combining both numerical and logical relations that characterize the complex systems. An attempt in the above direction is represented by a "hybrid function" which is defined as a product of a numerical function and a predicate function: $G(x_1, \dots, x_l) = f(x_1, \dots, x_n)F(x_j, \dots, x_m)$, where G is the hybrid function of l variables; f is the numerical function of n-i real variables; F is the predicate formula, or quantor of m-j variables; $1 \leq i < n \leq l$; $1 \leq j < m < l$. Truth is represented by 1, falsity, by 0. As an example of hybrid functions, the problem of optimal time of starting-up and shutting-off turbines and boilers in a power system is considered. Orig. art. has: 32 formulas.

SUB CODE: 12 / SUBM DATE: 22May65 /

Card 1/1

UDC:

TERNO, O.R., kand. tekhn. nauk

Economic frequency control using the load station method. Izv. vys.
ucheb. zav.; energ. no. 1:19-24 Ja '58. (MIRA 11:7)

1. Tallinskiy politekhnicheskiy institut.
(Electric power plants)

TERNO, V.S.

Nature of atypical strains and their significance in the bacteriological diagnosis of dysentery. Vrach. delo no.8:100-102
Ag '61. (MIRA 15:3)

1. Bakteriologicheskaya laboratoriya Novorossiyskoy gorodskoy sanitarno-epidemicheskoy stantsii.

(DYSENTERY--MICROBIOLOGY)

(SHIGELLA)

TERNO, V.S.

Some data on the role of atypical dysenterial strains in the process of infection. Zhur. mikrobiol., epid. i immun. 33 no.7:111-114, J1 '62. (MIRA 17:1)

1. Iz Novorossiyskoy gorodskoy sanitarno-epidemiologicheskoy stantsii.

BASUKINSKIY, I.N., inzh.; TERNOGIN, A.G., inzh.; BEKKER, B.Ya., inzh.

Evaluation of the operational efficiency of turbo feed pumps.
Elek. stat. 35 no.1:19-24 Ja '64. (MIRA 17:6)

BORISOV, M.D.; ZYKOV, V.G.; STEPANENKO, I.A.; TERNOPOL, A.M.;
PADALKA, V.G.; BRZHECHKO, L.V.

[Plasma production by the radial compression method and
measurement of certain plasma parameters] Poluchenie plaz-
my metodom radial'nogo szhatia i izmerenie ee nekotorykh
parametrov. Khar'kov, Fiziko-tekhn. in-t AN USSR, 1960.
277-294 p. (MIRA 17:3)

Radzika v. G., Stepanenko I. A., Ternopol, A. M.

TITLE: Spectroscopic measurements of ion temperature and ion density

The article describes the results of spectroscopic measurements of ion temperature and ion density in a plasma. The measurements were performed using a laser interferometer and a Fabry-Perot interferometer. The results show that the ion temperature and ion density are both functions of the laser intensity and the plasma density.

The ion temperature was measured using a laser interferometer. The results show that the ion temperature increases with increasing laser intensity and decreasing plasma density.

The ion density was measured using a Fabry-Perot interferometer. The results show that the ion density increases with increasing plasma density and decreasing laser intensity.

Spectroscopic measurement of ion ...

S/781/62/000/001/001-001

... contribute to the contour noticeably. Streak ...
maps have shown that the influence of radial plasma oscillations ...
... affect the ...

Card 2/2

41565

S/057/62/032/010/003/010
B104/B102

26.2371

AUTHORS:

Zykov, V. G., Il'yenko, B. P., Lats'ko, Ye. M., Stepanenko, I. A., Ternopol, A. M., Tolok, V. T., and Sinel'nikov, K. D.

TITLE:

Investigation into the properties of magnetic surfaces in systems with a helical magnetic field

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, v. 32, no. 10, 1962, 1190-1196

TEXT:

The shapes of the magnetic surfaces in systems with stabilizing helical windings were studied by the method of the preceding electron beam, developed by F. V. Karmanov and P. A. Cheremnykh at the Institut atomnoy energii im. I. V. Kurchatova (Institute of Atomic Energy imeni I. V. Kurchatov) and by injecting plasma clouds into a right cylinder with a three-turn coil, or by injecting them into the curvilinear section of a stellarator model. In the experiments with the preceding electron beam a fluorescent screen was used in the right cylinder (Fig. 1); in the experiments with the plasma clouds special targets were used, superficially charged by the plasma particles. If no current flows in the helical windings, the electron beam forms concentric circles on the fluorescent
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Investigation into ...

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B104/B102

screen. As the amperage in the helical winding increases, the circles degenerate to triangles, whose sides later bend inward. The largest and smallest radii of the separatrices measured as functions of I_{hel}/H_z , and the distortions of the magnetic surfaces caused by deviations of the magnetic axis from the geometric axis, are in agreement with theoretical results. The cross sections of the plasma clouds were studied as functions of I_{hel}/H_z in clouds completely filling the cross section of the tube, and in clouds partially screened by diaphragms. In the former case two types of particles were distinguished, one type remaining trapped in the central part of the cloud bounded by a separatrix, the other escaping from the confinement region. In the second case all plasma particles remained in the confinement region if the radius of the separatrix exceeded that of the clouds, but if it was smaller the same result was obtained as in the first case. The separatrix is a function of the confining induction and of the amperage in the helical windings. This agrees with the theory. The magnetic surfaces in the curvilinear chamber of a stellarator model was studied by the same methods, yielding practically the same results with the electron beam as those obtained with the right cylinder. It is only in the 2/3

Investigation into ...

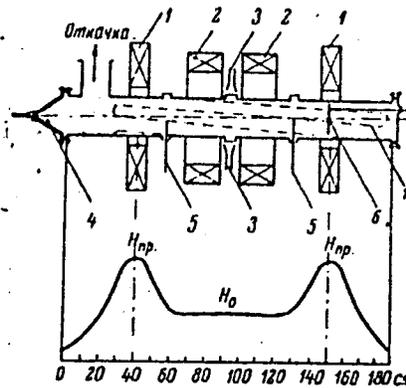
S/057/62/032/010/003/010
B104/B102

initial stage of the discharge that the electrons escape to the copper-walls of the vacuum chamber (diameter 80 mm) which was shaped as a semi-tore (mean radius of curvature 42 cm). It is concluded that at low velocities and small densities the plasma particles move along the lines of the magnetic field. There are 8 figures.

SUBMITTED: November 29, 1961

Fig. 1. Experimental arrangement (right cylinder).

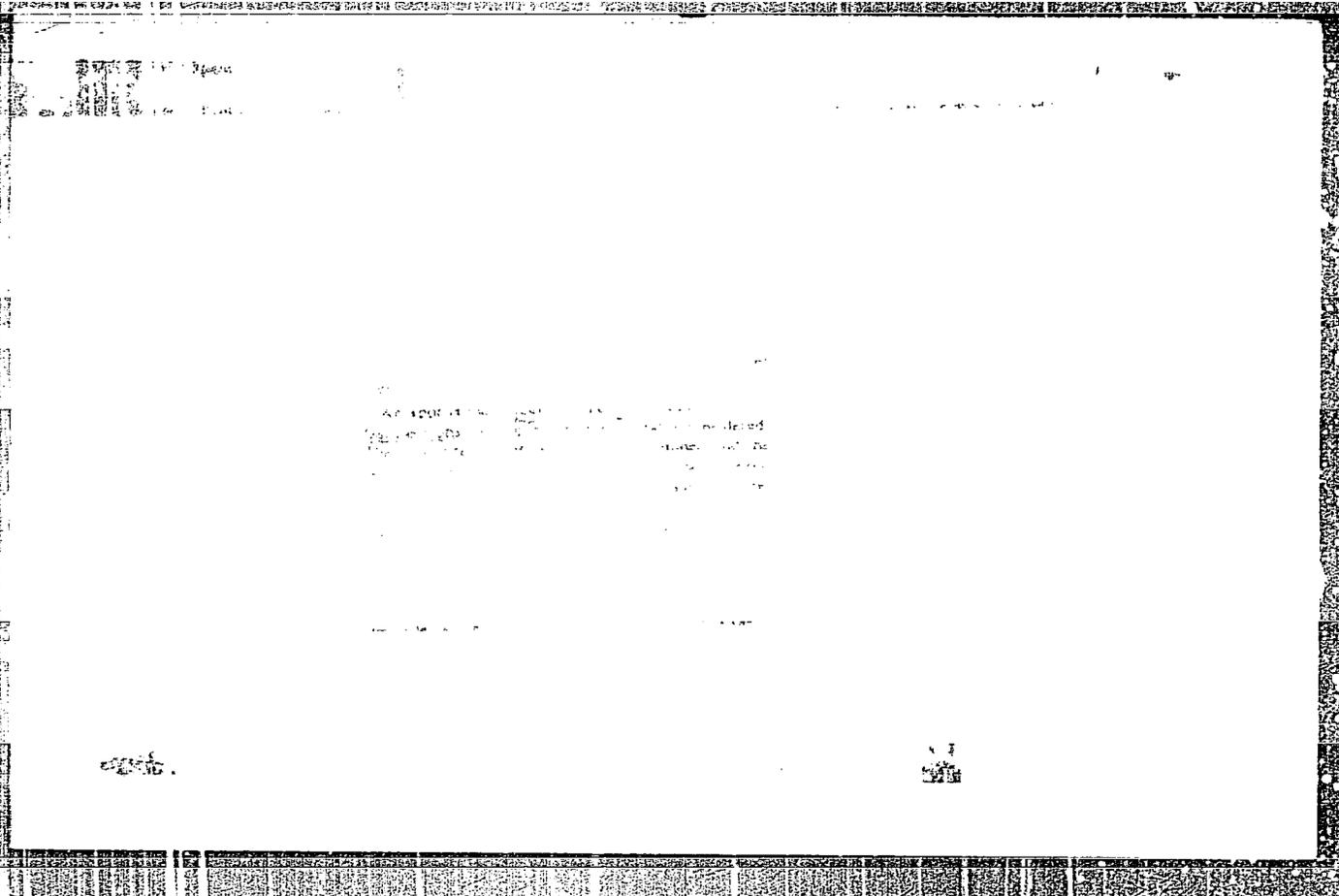
Legend: (1) coils producing the magnetic mirror field; (2) coils producing the main field; (3) mouthpiece for 3-cm waves; (4) conic plasma gun; (5) electric probes; (6) fluorescent screen; (7) helical winding.



Card 3/3

BABAYEV, A.; FRYKIN, Z.; TERNOUSHKO, N.M., red.; ABRAMOV, V.M., tekhn.red.

[Ashkhabad; a geographical study] Ashkhabad; geograficheski ocherk.
Ashkhabad, Turkmenskoe gos. izd-vo, 1957. 104 p. (MIRA 11:3)
(Ashkhabad--Description)



TERNOV, I.M.

SOBOLOV, A.A.; KLENIKOV, N.P.; TERNOV, I.M.

Quantum theory of luminescent electrons. Part 2. Zhur. eksp. i teor.
fiz. 24 no. 3:249-252 Mr '53. (MLRA 7:10)
(Electrons) (Quantum theory)

FERRER, M.

U.S. DEPARTMENT OF STATE
OFFICE OF THE ASSISTANT SECRETARY FOR
PUBLIC AFFAIRS

10/1/68

USSR/Atomic Physics - Fast Electrons

TERNOV, I.M.

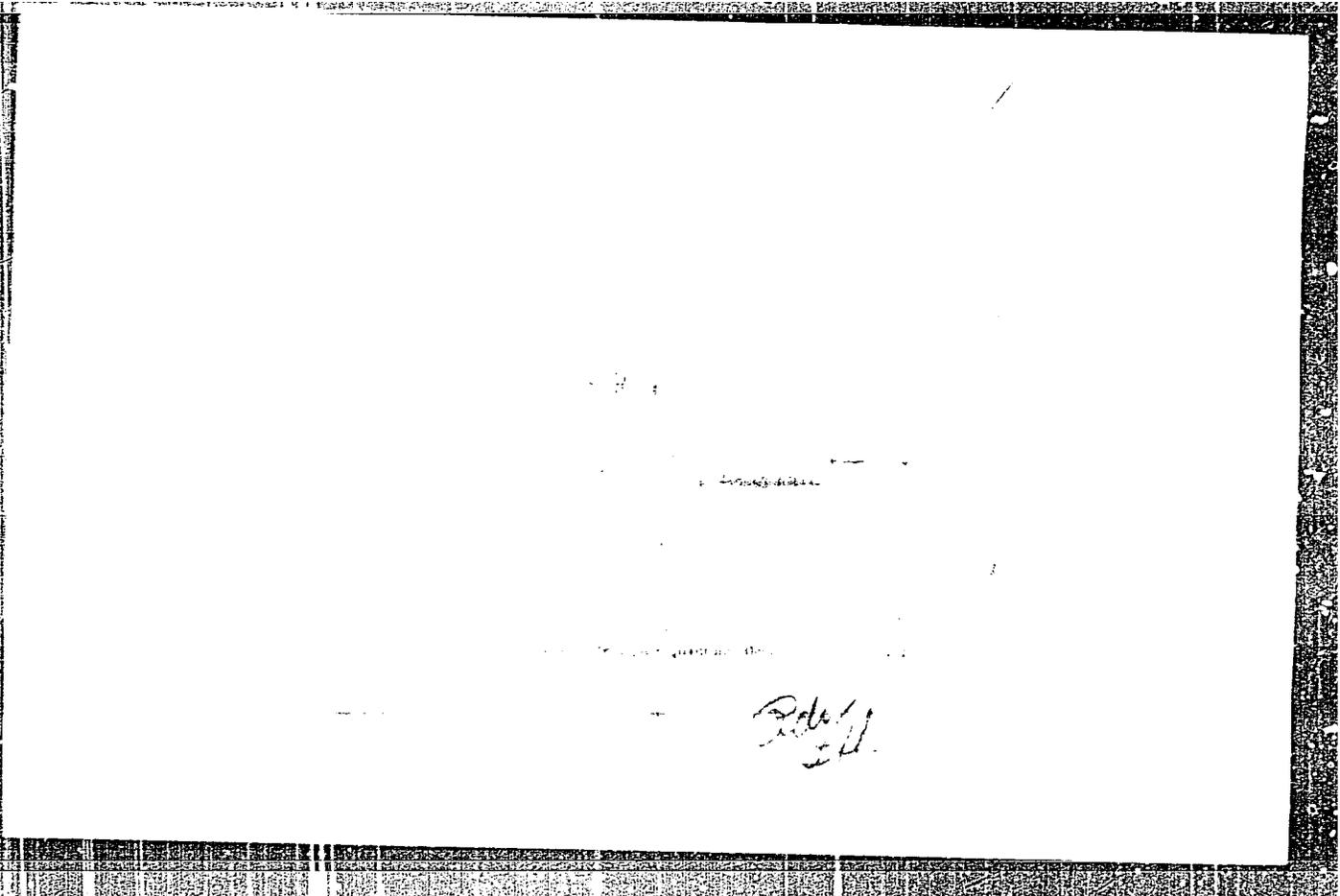
1 Apr 53

"Problem of Emission of Fast Electrons in a Magnetic Field," A.A. Sokolov, N.P. Klepikov and I.M. Ternov

DAN SSSR, Vol. 29, No 4, pp 665-668

In further developing works on quantum theory of luminescing electron (A.A. Sokolov, DAN SSSR, 67 (1949); A.A. Sokolov et al., "Classical Field Theory" (Klassicheskaya teoriya pola) 1951; N.P. Klepikov, Dissertation; A.A. Sokolov et al, ZHETF, 23 (1952)) authors succeeded in computing quantum corrections to full intensity of emission. Presented by Acad V.V. Shuleykin 16 Feb 53.

256T107



TERNOV, I.M.

SOKOLOV, A.A.; TERNOV, I.M.

Quantum theory of relativistic electron motion in an axisymmetric magnetic field. Dokl. AN SSSR 97 no.5:823-826 Ag '54. (MLRA 7:10)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom V.V.Shuleykinym.
(Quantum theory) (Electrons)

TERNOV, I.M.

Remarks on the magnetic moment of an electron. Vest.Mosk.un. 10
no.8:71-76 Ag '55. (MLRA 9:1)

1.Kafedra teoreticheskoy fiziki.
(Electrons) (Magnetic moment)

Ternov, I. M.

U S S R

5200

QUANTUM THEORY OF THE RADIATING ELECTRON. IV.
A. A. Sokolov and I. M. Ternov (Moscow State Univ.). Zhur.
Ekspri. i Teoret. Fiz. 25, 431-6(1955) Apr. (in Russian)

An expression is derived for the quantum correction to the
trajectory of a relativistic electron in an axial-symmetric
magnetic field. (tr-auth)

1
62

1-10-55

USER/ Physics - Quantum mechanics

Card 1/1 Pub. 22 - 16/49

Authors : Sokolov, A. A.; Matveev, A. N.; and Ternov, I. M.

Title : On polarization and spin effects in the theory of a glowing electron

Periodical : Dok. AN SSSR 102/1, 65-68, May 1, 1955

Abstract : A mathematical analysis is outlined for determining the intensity of glow

Institution: M. V. Lomonosov's State University, Moscow

Presented by: Academician N. M. Bogolyubov, January 21, 1955

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1979
 AUTHOR SOKOLOV, A.A., IVANENKO, D.D., TERNOV, I.M.
 TITLE On the Excitation of Macroscopic Oscillations by Quantumlike
 Fluctuations.
 PERIODICAL Dokl. Akad. Nauk 111, fasc. 2, 334-337 (1956)
 Issued: 1 / 1957

The energy of a relativistic electron moving in a homogeneous magnetic field H can be represented as the sum of the energy of the rotation movement E_1 of the electron and the energy of the oscillation motion E_s along the radius:

$E_1 \sim \sqrt{2eHc\hbar} \sqrt{1 + m^2 c^4}$, $E_s \sim \hbar \omega a = E \omega^2 a^2 / 2c^2$. Here $n = l + s$ denotes the principal quantum number, l - the azimuthal- and s - the radial quantum number, a - the amplitude of the radial oscillations. Next, formulae for the modification of the rotation- and oscillation energy on the occasion of the transition of an electron from the state n into the state $n' = n - \nu$ is given. The sum of these two modifications results in the entire energy loss by radiation while taking account of quantumlike corrections with an accuracy of up to \hbar .

The quantumlike corrections to the rotation movement can take effect only in the case of high energies. With $\hbar \rightarrow 0$ there is no modification of the energy of the radial oscillations at all, i.e. in the classical case the value of s remains constant even if radiation is taken into account. Only in the quantumlike case ($\hbar = 0$) does one peculiar energy jump occur if rotation energy is used not only for radiation but also for the excitation of radial oscillations

Dokl.Akad.Nauk 111, fasc.2, 334-337 (1956) CARD 2 / 2

PA - 1979

($s \neq \text{const}$). This causes the square of the amplitude of the radial oscillations to grow (in accordance with a rule which is mentioned here). For the purpose of clearing up the excitation mechanism of the quantumlike radial oscillations the case $q \neq 0$ is investigated, when, together with radial oscillations also axial oscillations can occur. On the occasion of the excitation of radial oscillations the rotating relativistic electron can emit a photon in the direction of the tangent. However, the modification of the energy also causes a modification of the radius of the steady orbit. Radial excitations are possible at energies of $E > E_{1/5}(\mu = 1/5)$. It applies that $E_{\mu} = mc^2(mc^2/\hbar\omega)^{\mu}$. In the classical case the modification of the amplitude which is due to a modification of the oscillation center must yet depend on the phase. Radial oscillations are excited if the processes following one another (MARKOV chain) are statistically independent. At high energies $E \gg E_{1/5}$ ($s = \text{const}$) there exists a very interesting motion of the relativistic electron: Its rotation round the magnetic field is then described by the classical theory, but radial oscillations with macroscopic amplitude are then to be described by the laws of quantum mechanics. For the "macro-atom" a very singular indetermination principle is applied.

INSTITUTION: Moscow State University.

Žurn.eksp.i teor.fis, 31, fasc.3, 439 - 448 (1956) CARD 2 / 2 PA - 1660

the integral radiation intensity have the same order as the corresponding classical quantities only at very high energies $E \sim E_{1/2}$. On this occasion $E_{\mu} = mc^2 (\text{mcR}/h)^{\mu}$. The latter condition ($\mu = 1/2$) for the occurrence of quantum corrections refers to the quantum numbers n and l (l - azimuthal quantum number). The quantum-like corrections for the axial oscillations must be taken into account at $\sqrt{3}/n > 1$ or $E > E_{1/3}$. On this occasion $E_{1/3}$ is defined by the above equation for E_{μ} at $\mu = 1/3$.

According to the criteria set up on this occasion the quantumlike effects, influence above all the radial oscillations $E \sim E_{1/5}$, and then the axial oscillations $E \sim E_{1/3}$, but it is only at very high energies $E_{1/2}$ that they exercise any influence on the total intensity of the radiation. In conclusion, the radial phase oscillations in synchrotron in consideration of quantum effects are investigated. These radial phase oscillations are damped at $q < 3/4$, and at $q > 3/4$ the motion becomes insteady.

INSTITUTION: Moscow State University.

TERNOV, I.M.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1663
 AUTHOR SOKOLOV, A.A., TERNOV, I.M.
 TITLE On the Polarization Effects in the Radiation of the Radiating
 Electron.
 PERIODICAL Zhurn. eksp. i teor. fis., 31, fasc. 3, 473-478 (1956)
 Issued: 12 / 1956

These polarization effects are investigated by quantumlike methods, but in classical approximation. At first the amplitudes of the linear and circular polarization of the photon field are computed. The commutation relations for the amplitudes of the vector field are given. On the occasion of the investigation of the polarization effect it is necessary to subdivide the amplitude \vec{a} of the vector potential into components, each of which characterizes a certain polarization state. In the case of linear polarization \vec{a} must be subdivided into two components which are vertical to each other. Also the procedure to be applied in the case of circular polarization is mentioned. The expression for the radiation intensity is $W_i = \sum_{\nu} \int_0^{\pi} d\theta \sin \theta W_i(\nu, \theta)$, and on this occasion the relation $W_i(\nu, \theta) = c^2 S_i$ applies to the spectral- and angular distribution of radiation intensity. The index i characterizes the polarization state ($i = 2, 3, 1, -1$) and θ denotes the angle between the wave vector and the z -axis. Also a formula for the connection between S and the amplitudes of the photon field is given. The expressions for S are specialized for linear and

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PA - 1663

circular polarization. In order to give complete characterization of the polarization properties of radiation it is necessary (if the phases are unknown) to compute, in addition to the intensities of linear polarization (W_2 and W_3), also the intensity of the circular frequency (W_{-1} and W_1). In the case of unpolarized radiation $W_2 = W_3 = W_{-1} = W_1 = W/2$, in the case of linear polarization $W_2 = W$, $W_3 = 0$ and in the case of circular polarization $W_{-1} = W$, $W_1 = 0$ is true. The simultaneous existence of a partly linear and partly circular polarization $W_2 \neq W_3$, $W_{-1} \neq W_1$ corresponds to an elliptically polarized radiation.

The radiation of the radiating electron in consideration of polarization effects: The matrix elements are given for the case of transition to classical approximation ($\hbar \rightarrow 0$), as also the herefrom derived formula for radiation density which characterizes not only spectral- and angular distribution but also polarization. In the rotation plane of the electron, radiation is linearly polarized. Also the ultrarelativistic case is computed. The greatest intensity is attained by the radiation which corresponds to the σ_1 states. (In the case of σ -states the polarization vector is in the orbital plane). The theory developed here can be used also on the occasion of the investigation of the radiation of the sun and of the galaxy, where certain polarization properties have already been found experimentally.

INSTITUTION: Moscow State University

TERNOV, I. M., SOKOLOV, A. A., and IVANENKO, D. D.

"On the Excitation of Macroscopic Oscillations by Quantum Fluctuations," by A. A. Sokolov, D. D. Ivanenko, and I. M. Ternov, Moscow State University imeni M. V. Lomonosov, Doklady Akademii Nauk SSSR, Vol 111, No 2, 1956, pp 334-337

The energy of a relativistic electron moving in a homogeneous magnetic field is represented as the sum of the energy of the rotational motion and the energy of the radial oscillatory motion.

Formulae for the change in energy of the rotational and oscillatory motions for a given change in state, the sum of which gives the total energy loss in radiation of a radiating electron to an accuracy of \hbar , are given in terms of the probability of a spontaneous transition per unit time and the total energy of the radiation of a radiating electron in the classical approximation. An expression for the quantum correction is given.

Assuming rotational energy can be expended as radiation and as excitation of the radial oscillations, a law governing the increase in the square of the amplitudes of the radial oscillations is given.

In considering the mechanism of excitation of quantum radial fluctuations, it is shown that radial excitation will take place when energies $E > E_{1/5}$, where $E_{1/5} = mc^2 (mc^2 / \hbar \omega)^{1/5}$, and when successive processes are statistically independent.

A law governing the excitation of axial oscillations, which can take place when $E > E_{1/3}$, is also given.

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755420004-3"

TERNOV, I. M.

20-6-13/47

AUTHORS: Sokolov, A. A., Ternov, I. M.,

TITLE: On the Quasi-classical Interpretation of the Quantum Effects in the Theory of the Emitting Electron (O kvaziklassicheskoy interpretatsii kvantovykh effektov v teorii svetyashchego elektronu)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 6, pp. 967-970 (USSR)

ABSTRACT: The present paper gives a quasi-classical interpretation of those quantum effects which according to the quantum theory must occur in the motion of an ultrarelativistic electron in a magnetic field. First the classical equations for the motion of an ultrarelativistic electron in a synchrotron with the taking into account of the radiation are given. In linear approximation $\rho \sim R + qx$ is found for the radius of curvature. In this connection R signifies the radius of the instantaneous path of equilibrium, q - the exponent ($0 < q < 1$) characterizing the reduction of the magnetic field and $x = r - R$ is the coordinate of the betatron vibrations, where r signifies one of the cylindrical coordinates r, z, φ . Then in the linear approximation of the phase vibrations an expression is written down for the energy which the electron takes in the accelerating device. Then the initially mentioned classical equations are linearized. An equation for the radial betatron-vibrations is also derived. When a steady frictional force is intro-

Gard 1/3

On the Quasiclassical Interpretation of the Quantum Effects 20-6-13/47
in the Theory of the Emitting Electron.

duced into the theory of betatron vibrations the high damping coefficients must also be taken into account. An equation for the determination of the phase vibrations is written down. In the study of the emitting electron the influence of the factor of the discrete nature of the radiation must be taken into consideration. A fluctuation force for the description of the discrete nature of the radiation is introduced. One of the equations then derived characterizes the axial vibrations with consideration of the quantum fluctuations. The energy of the fluctuation radiation is proportional to ρ (and not to ρ^2 as in the classical case). But the transition probability also is inversely proportional to ρ . Therefore the classical formula is again obtained on transition to the steady radiation. In exactly the same manner the "High" coefficients of the damping by a transition to the limit from the quantum fluctuation forces to the steady radiation can be determined. A formula is given for the square of the amplitude of the radial vibrations with consideration of the fluctuation force. Finally the synchrotron vibrations in the presence of quantum fluctuations are shortly investigated. There are 8 references, 5 of which are Slavic.

Card 2/3

On the Quasiclassical Interpretation of the Quantum Effect 20-6-13/47
in the Theory of the Emitting Electron.

ASSOCIATION:

Moscow: State University imeni M.V. Lomonosov. (Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova)

PRESENTED: October 18, 1957, by N.N. Bogolyubov, Academician

SUBMITTED: October 14, 1957

AVAILABLE: Library of Congress

Card 3/3

AUTHOR: Ternov, I.M.

SOV/139-58-6-20/29

TITLE: On the Quantum Interaction of an Electron with the Accelerating Electric Field in a Synchrotron
(O kvantovom vzaimodeystvii elektrona s uskoryayushchim elektricheskim polem v sinkhrotrone)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1958, Nr 6, pp 123-129 (USSR)

ABSTRACT: A quantum-mechanical discussion is given of the energy absorbed by an electron when it passes through the accelerating gap in a synchrotron. In a synchrotron an electron experiences a high-frequency electric field (in addition to the magnetic field) and the direction of the electric field is tangential to the electron path. The electric field is localised in one or a few accelerating gaps and the electron increases its energy on passing through these gaps. The electric field compensates radiational losses of the electron and this compensation takes place in jumps during the instant of passage of the electron through the accelerating gap. The process of energy absorption by the electron is discussed from the point of view of

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On the Quantum Interaction of an Electron with the Accelerating
Electric Field in a Synchrotron

SOV/139-58-6-20/29

quantum transitions. Only terms linear in the electric field are retained and the interaction of the electron with the electric field is looked upon as a perturbation introduced into the motion of the electron in the magnetic field. It is shown that the presence of the accelerating gaps has no effect upon betatron vibrations. This is not the case in the radiation process when discreteness plays an important role (Ref 6). A.A.Sokolov is thanked for valuable discussions. There are 6 references of which 5 are Soviet and 1 English.

ASSOCIATION: Moskovskiy Gosuniversitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: 1st April 1958

Card 2/2

VOROB'YEV, A.A.; TERNOV, I.M.

International conference on high energy particle accelerators and instruments used in nuclear physics, held in Geneva from January 14th to January 19th, 1959. (MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova i Tomskiy politekhnicheskoy institut imeni S.M. Kirova.
(Particle accelerators--Congresses)
(Nuclear physics--Congresses)

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E032/E114

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AUTHORS: Sokolov, A.A., Ternov, I.M., and Loskutov, Yu.M.

TITLE: On the Transformation Properties of the Spin/9
Pseudovector

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1959, Nr 5, pp 72-80 (USSR)

ABSTRACT: Problems connected with the spin properties of particles have recently become more important in view of the discovery of the non-conservation of parity (Ref 1). The present paper introduces the 4-vector of polarisation of Dirac particles by a covariant method and investigates its transformation properties. The transformation law is shown to be of the form given by Eqs (14a-2). The results obtained from an analysis of the transformation properties are used in connection with phenomena in which parity is not conserved. In particular the $\pi_{\mu e}$ decay is discussed and it is shown that in the laboratory system, the spin of the μ meson makes an angle α with the direction of its momentum which is given by Eq (21), where θ_{μ} is the angle of emission of the μ meson. The appearance of a transverse component of the μ meson spin in the laboratory system has also been considered by ✓

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On the Transformation Properties of the Spin Pseudovector

Ascoli (Ref 9) but differs from Eq (21) by the factor given by Eq (23), which takes into account relativistic contraction of the transverse components of the spin. In fact, the axial spin vector characterises the circular polarisation in the plane perpendicular to its direction. For the longitudinal spin component this plane is perpendicular to the velocity of the particle and hence the polarisation remains unaltered. In the case of the transverse component, on the other hand, the velocity vector will lie in this plane and hence the polarisation will change. For particles with zero rest mass, the angle α vanishes, i.e. if the axial vector \underline{s} is parallel to the momentum vector \underline{k} in the given inertial frame, they will remain parallel in all other inertial frames. This can be used to characterise the neutrino and the anti-neutrino by different values of s , namely $s = -1$ and $s = +1$. If the polarisation of the neutrino is characterised by its helicity, i.e. by the rotation of the component of the vector $\underline{\sigma}\psi$ which is perpendicular to the momentum, then in transforming

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On the Transformation Properties of the Spin Pseudovector

from a left-handed system to a right-handed system this rotation is conserved, i.e. a left-handed neutrino will not transform into a right-handed neutrino. In fact, in such a transition the momentum (polar vector) changes sign while the axial spin vector remains unaltered. However, the same direction of the axial vector in the left-handed and right-handed coordinate systems correspond to opposite rotation (circular polarisation). It follows that space inversion conserves helicity. There are 12 references, of which 7 are Soviet and 5 English.

Card
3/3

ASSOCIATION: Moskovskiy gosuniversitet imeni M.V. Lomonosova
(Moscow State University imeni M.V. Lomonosov)

SUBMITTED: May 4, 1959

TERNOV, I.M.

Quantum interaction of an electron with an accelerating electric field in a synchrotron. *Izv.vys.ucheb.zav.:* fiz. no.6:123-129 '59.
(MIRA 12:4)

1. Moskovskiy gosuniversitet im. M.V. Lomonosova.
(Electrons) (Synchrotron)

24(5)

AUTHORS:

Sokolov, A. A., Tarnov, I. M., Loskutov, Yu. K.

SOV/56-36-3-49/71

TITLE:

On the Problem of the Covariant Determination of the Spin Pseudovector (K voprosu o kovariantnom opredelenii psevdovektora spina)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 930-932 (USSR)

ABSTRACT:

The present paper ("Letter to the Editor") is based upon an earlier paper by Sokolov (Refs 1-3). It has already been shown that the longitudinal polarization of free Dirac particles can be described by the operator $(\vec{\sigma}\vec{k})/k$. This operator occurs as integral of motion with the eigen value "s". The authors endeavor to connect with the value "s" not only longitudinal polarization but also transversal polarization as well as the time component of the spin vector. Proceeding from the wave function for positive energy in consideration of the spin state equations are derived for the components of the spin vector. The transversal and the time component, which do not occur as integrals of motion, can be represented as mean value

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$$\xi_{\mu} = K \int \psi^+ \alpha_{\mu} \psi d^3x, \quad K = k_0 / \sqrt{1-\beta^2}$$